

Chapin, (H. D.)

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YOUNG CHILDREN.

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It has been pointed out by some of the close observers of disease in childhood that typhoid fever in early life differs much in type from that of later years. Those familiar with this fever in adult life, with its severe abdominal symptoms, intense prostration and frequently fatal termination, often find it hard to recognize the same disease in its milder form in early childhood. The broad term malaria is then used to cover a continuous fever that does not yield to quinine and which may last over a month. That benignant and walking cases of typhoid fever occur in little children more frequently than is often supposed has been brought to my attention by a number of cases that have come to the clinic at the Out-Door Department, Bellevue Hospital, during the past year. The following is one out of a number of cases I have treated and will serve as a fair sample of the rest of them:

John C., aged seven years, was brought by his mother to the clinic Feb. 19th. She found it difficult to state just when the child began to get sick, although I questioned her closely on this point. The boy had formerly been very lively and robust, but for some days had lost his natural vivacity, and failed somewhat. Instead of playing on the street as usual, he would stay in the house and sit near the fire, complaining of feeling cold. He continued to grow worse, until, to use his mother's expression, "he seemed to fade away." He was very thirsty all the time and gradually developed a fever. He was found to have a tempera-

ture of 102° , and in spite of large doses of cinchonidia was not free from fever until after the middle of March. The temperature was taken early in the afternoon and at first stood $101\frac{1}{2}^{\circ}$, in a week or so it sank to 100° , and later on reached $99\frac{1}{4}^{\circ}$, when it soon became normal. In a dispensary patient it is impossible to get an accurate fever curve, but on one or two occasions when the temperature was taken later in the day it was found to have increased from $\frac{1}{4}^{\circ}$ to 1° . The pulse varied with the fever. When first noted it was 130, and remained so for several days. It then sank to 120, and down gradually to 100 when the fever subsided. The gastro-intestinal symptoms were not marked. He had no diarrhea at any time. During the first week, indeed, the bowels were quite costive, and after that fairly regular. The tongue was covered with a dirty white fur. His appetite was completely lost, but thirst was continuous. Although he did not complain of any pain, he became much emaciated. It was impossible to locate any special tenderness over the cæcum, as it gave the child much discomfort to press anywhere over the abdomen. The spleen was slightly enlarged and very tender on pressure. Upon palpation under the ribs he would jump with the pain. This tenderness disappeared after the first part of his illness. The only nervous symptom he complained of was headache. This was most intense during the first week, and after that gradually disappeared. His psychical condition was marked by stupidity. Although naturally a bright child, he now viewed everything with apathy. After being ill about a week he got a dry, hacking cough, which lasted most of his sickness. The signs upon a physical examination of the lungs were negative. The child was not confined to bed, but exhibited little inclination to move about, preferring to lie on a lounge most of the time. His mother brought him to the clinic three times a week. The treatment, which at first consisted of large doses of cinchonidia, and later of smaller doses, had no effect upon the disease, but in a few weeks he recovered his usual health and spirits, which have continued to the present time.

Certainly in the crowded tenements of the east side, from one of which this boy came, we have all the elements that are supposed to cause typhoid fever. The sinks, filled with animal and vegetable refuse above, and often poorly protected by traps below, are frequently found in a room in which the cooking is done, and in which several members of the family sleep at night. Opening out of this apartment, there is in many cases a dark room, utterly without means of ventilation, in which the rest of the family sleep. If the sink is in the hallway, there is often only an imperfect partition between it and the living rooms, through which noxious gases can easily penetrate. Vessels containing fecal matter and fermenting filth of all kinds are allowed to stand for hours, or sometimes even for

days in sleeping rooms without being emptied. The poison, whose vehicle is the so-called sewer gas, has here very favorable conditions to generate and infect the impaired constitutions of the inmates. It would seem only rational to suppose that such a poison, developed in densely populated centres, could produce different clinical effects from the marsh miasm of the suburbs. Weak children especially, whose systems cannot so readily resist disease, and who are more constantly confined to the house, succumb more readily to these antihygienic influences than adults.

But the existence of this fever in early childhood is not confined to the poorer classes, and is sometimes seen under apparently the most favorable hygienic surroundings, as is shown in the following case :

On Dec. 25th, I was called to see L. W., aged five years. His mother stated that, as nearly as she could recollect, he began to feel sick about Dec. 22d, when he complained of a continual tired feeling and lost all interest in his toys. As he had previously shown great excitement over the approach of Christmas, this apathy was the more noticeable. Towards afternoon he would become restless and slightly flushed. He had no chill, and as near as I could learn, no cold feelings through the body. His temperature was $103\frac{1}{2}^{\circ}$, and pulse 130. As I could find no local cause for this fever, after a careful examination, I put him at once on large doses of quinine. The evening temperatures during the first week were $103\frac{1}{2}^{\circ}$, 103° , $102\frac{3}{4}^{\circ}$, 102° , 103° , $102\frac{1}{2}^{\circ}$, $102\frac{3}{4}^{\circ}$ —during the second week, $102\frac{1}{4}^{\circ}$, $103\frac{1}{2}^{\circ}$, 102° , $101\frac{1}{4}^{\circ}$, $99\frac{1}{2}^{\circ}$, $98\frac{3}{4}^{\circ}$, 99° . The fever gradually subsided until there was complete apyrexia in the evening at the close of the third week. The morning temperatures of the first two weeks were from 1° to 3° lower than the evening. In spite of this marked febrile disturbance there was very little prostration and an utter absence of those symptoms that constitute the typhoid condition. The child would lie on a sofa during the day, be carried down-stairs when the family went to meals, and was confined to bed only at night. The pulse varied with the temperature, starting at 130 for the first few days, then 120, and gradually down to 90. The most marked gastro-intestinal symptom at first was nausea and a general sick feeling. This he complained of most in the middle of the day. During the first week he had one natural movement from the bowels a day. For the next few days he had two movements, with the feces very soft and copious, then the one natural movement a day returned. The desire for food was entirely lost. There was very general and marked hyperesthesia of the skin. No splenic enlargement was detected, although it was difficult to make a careful examination, as the very general sensitiveness

interfered with the necessary manipulations. In the middle of the second week two rose-colored spots made their appearance, one on the abdomen and the other in the groin. No other spots appeared during the disease. A slight cough was noticed at the beginning of the second week and lasted during most of his illness. About a week after the fever had subsided, a slight relapse was brought about by the child playing too hard with one of his companions. The temperature rose as high as $102\frac{1}{2}^{\circ}$, but fortunately, with complete rest, the fever subsided again in two or three days.

I could find no cause, in this case, for the development of the fever, as the child lived in a roomy, well-ventilated house, situated in a healthy part of Madison avenue. One suspicious circumstance, however, was that the crib in which the child slept was placed near a door opening into a bath-room and water-closet. As this door had been kept open at night to allow a circulation of air between the sleeping room and a shaft opening up to the roof from the bath-room, I thought this might give some explanation of the fever. The plumbing of the bath-room and water-closet were found to be in a good condition, however; but the door has since been kept closed at night.

These cases I think represent fairly well the average mild type of typhoid fever as it occurs among young children in New York. The older the child the more closely does the disease approach the classic type of adults. That this benignant fever is really typhoid, and not what is generally styled malarial, is proven by the fact that when autopsies have been made the lesions of typhoid fever have been found present. During 1881 there was an epidemic of fever among the children of the Catholic Half-Orphan Asylum in this city. There were very many cases, and, at first, there was some doubt as to the nature of the fever, until Prof. Janeway found the typical lesions of typhoid fever in the two or three fatal cases. The nature of this fever is also shown by the fact that it always runs a certain course entirely uninfluenced by the large doses of quinine that control simple malaria. Again, there have been cases observed in which an adult and a child in the same family have had an attack of fever, the former suffering from severe typhoid symptoms evidently induced by the same causes that produced the lighter attack in the child. Prof. J. Lewis Smith mentions the case of three children in one family who were suffering from a

mild continuous fever, when their aunt who lived with them was taken with a severe attack of typhoid fever. It is also interesting in this connection to note that in the late epidemic of typhoid fever in Paris the physicians state that the children had a much milder grade of fever than the adults.

One of the most remarkable features of the disease in children is the frequent absence of all abdominal symptoms. The bowels may be natural, or not infrequently costive. In the outbreak at the Catholic Half-Orphan Asylum, Prof. Janeway tells me that only one in seventy cases had diarrhea. It is difficult to locate pain on pressure over any special part of the abdomen. There is usually such general hyperesthesia that the left iliac region appears as tender as the right. Tympanites is rare. Gurgling is not pathognomic, as it may be present in children having a simple diarrhea. Roseola, especially in the mildest cases, is frequently absent. In the epidemic already mentioned as occurring at the Catholic Half-Orphan Asylum, eight cases in seventy showed an eruption. The nervous symptoms are not nearly so prominent as in adults. In the great majority of cases there is a mild bronchial catarrh. This is one of the most constant and important of the symptoms. Not infrequently the disease is diagnosed as a simple bronchitis. The spleen is often enlarged, and may be tender on palpation. I have found it difficult, in very young children, to accurately map out the enlarged spleen. The duration of the fever varies within much wider limits than in adults. Hensch, of Berlin, states that it may last from one to seven weeks. He also divides it into a remittent and intermittent stage. I treated last winter two children in the same family. In a girl of six years the fever, with relapses, lasted eight weeks; in her brother, aged ten years, the duration was three weeks. A most peculiar feature in children is that the fever, after lasting several days, or a week, may abruptly subside. Professor Janeway has especially called attention to the tendency of this fever to abort in children. He has studied a number of epidemics occurring in institutions, notably four outbreaks among the children of the Deaf and Dumb Asylum, and the one that took place at the Catholic Half-Orphan Asylum. He states that in the epidemics he has seen in institutions, only one-half of the cases go on to the full development of the disease. The fever may last

three, five, or ten days, and then abort. This sudden stopping of the fever has not been due to any medication, as the children were simply put to bed and placed on a milk diet. These abortive, and frequently unrecognized cases, may do great harm by infecting their surroundings. Professor Janeway states that in any doubtful case the physician should disinfect the stools and water-closet, and institute a careful examination of the plumbing. At the Deaf and Dumb Asylum bad plumbing and a polluted well were found to be apparently the causes of the fever. Probably the average duration of the fever in cases that do not abort is from two to three weeks. Its most frequent occurrence is stated by Prof. J. Lewis Smith to be between the ages of six and twelve years. It may be present, however, at an earlier age. Prof. A. Jacobi mentions a case in which a new-born baby had the fever, from which it died on the sixteenth day. The autopsy showed slight ulceration of Peyer's patches. The mother was very poorly at the time of her confinement, and the house was in a bad sanitary condition.¹ The mortality from the disease is small. Meigs and Pepper state that in mild cases death scarcely ever occurs, while in more severe forms the death rate may reach five or ten per cent. Henry Ashby, in an article in the *Practitioner*, states that among 265 cases the mortality reached nearly eight per cent.² I think this ratio shows a severer type of fever than generally occurs among young children in New York.

In order to make a diagnosis, it is necessary, first, to exclude any local disease with a remittent pyrexia. This is very important, as young children are not infrequently found to be suffering from obscure local disease, without any marked objective symptoms. It is thus necessary in all cases of continuous fever to make a careful examination of all the organs to exclude any mere local affection, before venturing to call the disease typhoid fever. A careful inspection of the fauces, tonsils, and pharynx, will sometimes show a local cause for the fever. A thorough examination of the lungs is always very necessary. A pneumonia may occasionally exist in young children, with very obscure symptoms. In two cases I have found a pneumonia at one apex to be the cause of the fever. That

¹ Medical Record, October 25th, 1879.

² Practitioner, London, June, 1881.

the consolidation was not tubercular, but due to a simple pneumonitis, was proven by the subsequent histories of the cases. The abdomen should next be examined to exclude idiopathic inflammations of its organs. The principal thing here to differentiate would be a simple gastro-intestinal catarrh, with a low grade of fever. In typhoid fever, however, the intestinal symptoms that exist have been preceded for some days by the fever. The accompanying headache, bronchitis, splenic enlargement, and sometimes the presence of rose-colored spots, will all assist in the diagnosis.

Second. After having excluded any local lesion as the cause of the fever, the next step is to differentiate it from simple malaria. This is based largely on the duration of the fever after exhibiting quinine in full therapeutic doses. It is impossible to distinguish between the two diseases for the first few days. If, however, in spite of the quinine, an accurate observation of the morning and evening temperatures shows that the fever is not yielding, it is generally pretty safe before the end of the first week to exclude simple malarial poisoning. Bronchitis and gastro-intestinal disturbances being frequently present in both forms of fever, are not of value in the diagnosis. Some physicians refer to this fever under the name of typho-malarial. Professor Janeway, who is one of the recognized authorities on this subject, objects to this term as the name of a distinct disease. He states that he does not believe in typho-malarial fever, except as a combination of malaria with a regular typhoid fever, and that much which is called typho-malarial is really pure typhoid fever. In many of those dying of so-called typho-malarial fever, the autopsy will fail to disclose any evidence of malarial poisoning. Again, occasionally the term typho-malarial is made to cover what is really a pure malarial fever of severe type, and in such cases the autopsy will not show any typhoid alterations. He thinks it would have been better not to have introduced this name, as it has led to confusion by many physicians supposing it to indicate a special disease process, and hence not using proper precautions against typhoid fever spreading. He states he has known very bad sanitary conditions to be allowed to continue because the use of the name typho-malaria had lulled the physician and family into a false security. Probably the term typho-malarial fever is espec-

ally often used in connection with the mild typhoid of children.

Third. It is well to remember that other general diseases besides malaria may be the occasion of a suspected typhoid fever in a child. Acute articular rheumatism and tuberculosis must be kept in mind as among these. It is extremely difficult to distinguish between typhoid fever and tuberculosis before the physical signs of the latter disease have become marked, especially as the tubercles in young children are so apt to be disseminated. The exanthemata are not usually a perplexing element in the diagnosis. The remittent fever of the first few days of measles may awaken suspicion, but the rash will soon clear up the diagnosis.

I have seen a number of cases in which diphtheria, without marked throat symptoms, resembled in clinical history the typhoid fever of childhood. The following cases will illustrate:

Two children, aged five and eight years, were brought to Prof. J. Lewis Smith's clinic at the Bellevue Hospital Medical College to be treated for fever. Their mother said they had lately removed from a very malarious district on Long Island, where they had frequently suffered from ague. The present attack of fever, however, had lasted longer than usual, in spite of the customary remedies. The children stated that they had no pain anywhere, although evidently suffering from weakness and prostration. The temperatures were 100° and $99\frac{1}{4}^{\circ}$. On examination, the heart and lungs of both were found healthy, as well as the abdominal organs. Finally, their throats were inspected, when the tonsils were found to be both covered by a well-marked diphtheritic membrane. There was nothing to draw attention to this disease in the children, besides the prostration, as they complained of no pain nor difficulty in swallowing the little food they cared to take.

These cases will also emphasize the importance, already insisted upon, of a careful local examination of organs, as occasionally a severe constitutional disease of a different nature from that suspected may be discovered. In these children, the history of a continuous fever, loss of appetite, and thirst, with absence of local pain, all pointed to a diagnosis of typhoid fever.

